

**REMARKS**

The Examiner is thanked for the due consideration given the application.

Upon entry of this amendment, claims 1-6, 12-16 and 23 are pending in the application. By this amendment, claims 9 and 10 are canceled and their subject matter is generally incorporated into claim 1. This amendment also cancels claims 17-22, 24 and 25.

No new matter is believed to be added to the application by this amendment.

Entry of this amendment under 37 CFR §1.116 is respectfully requested because it cancels claims and places the application in condition for allowance.

**Art Rejections**

The Office Action has applied the following art rejections against the present invention:

**I.** Claims 1-4, 6, 9, 14-17 and 19 have been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. (WO 01/86748) in view of FUNAOKA et al. (WO 00/20493) (as referenced to their corresponding U.S. Patent Nos. 7,029,793 and 6,666,969) and PARONEN (U.S. Patent 6,630,518).

**II.** Claims 5 and 21 have been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. as applied to claims 1-4, 6, 9, 14-17 and 19, and

further in view of KIM et al. (*Solid State Ionics*, 144 (2001) 329-337).

**III.** Claim 10 has been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. and PARONEN as applied to claims 1-4, 6, 9, 14-17 and 19, and further in view of KANEKO et al. (U.S. Patent 5,494,991).

**IV.** Claims 12 and 13 have been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. and PARONEN as applied to claims 1-4, 6, 9, 14-17 and 19, and further in view of SUZUKI et al. (U.S. Patent 6,815,124).

**V.** Claims 18 and 20 have been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. and PARONEN as applied to claims 1-4, 6, 9, 14-17 and 19, and further in view of ICHINO et al. (U.S. Patent 5,858,264).

**VI.** Claim 21 (it is believed) has been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. AND PARONEN and further in view of KIM et al.

**VII.** Claim 22 has been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. PARONEN and KIM et al. as applied to claim 21, and further in view of ICHINO et al.

These rejections are respectfully traversed.

As has been noted above, claim 1 has been instantly amended to incorporate the subject matter of claim 10 and intervening claim 9. Claim 10 has been rejected under 35 USC §103(a) as being unpatentable over NAKAGAWA et al. in view of FUNAOKA et al. and PARONEN as applied to claims 1-4, 6, 9, 14-17 and 19, and further in view of KANEKO et al. The other rejections are obviated by the instantly amended claims.

However, as acknowledged in the Office Action, all of NAKAGAWA et al., FUNAOKA et al. and PARONEN fail to teach a polyimide constituting the microporous polyimide membrane comprising at least 1 mol% of 3,3'-dihydroxy-4,4'-diaminobiphenyl based on the total diamine component.

Further, although KANEKO et al. disclose "a polyimide comprising at least 1 mol% of 3,3'-dihydroxy-4,4'-diaminobiphenyl based on the total diamine component" as pointed out in the Office Action, KANEKO et al.'s invention is outside the field of endeavor of the present invention.

That is, KANEKO et al. relate to a novel polyimide and the production method thereof, but is totally silent about an electrolyte membrane.

Thus, one skilled in the art would have never been motivated to produce a claimed embodiment of the present invention from the teachings of NAKAGAWA et al., FUNAOKA et al. and PARONEN, and KANEKO et al.

Moreover, one of ordinary skill and creativity would never have a reasonable expectation of attaining the advantageous effects that can be exhibited by the use of a specific "polyimide comprising at least 1 mol% of 3,3'-dihydroxy-4,4'-diaminobiphenyl based on the total diamine component" for an electrolyte membrane.

The advantageous and unexpected effects of the amended claim 1 are attributable to the use of a specific microporous polyimide membrane which is formed from a polyimide that contains at least 1 mol% of 3,3'-dihydroxy-4,4'-diaminobiphenyl based on the total diamine component as the microporous polymer membrane. This is apparent from the comparison between Examples 2-4 and Example 1 of the present specification.

Namely, as is clear from the results shown in Tables 1, 2 and 3 of the specification of the present invention, the electrolyte membranes of the Examples 2-4, wherein "the polyimide constituting the microporous polyimide membrane comprises at least 1 mol% of 3,3'-dihydroxy-4,4'-diaminobiphenyl based on the total diamine component", have a significant high ion conductivity as compared to that of the Example 1, where "a polyimide constituting a microporous polyimide membrane does not contain 3,3'-dihydroxy-4,4'-diaminobiphenyl".

One of ordinary skill and creativity would thus fail to produce instant claim 1 of the present invention from a knowledge of NAKAGAWA et al., FUNAOKA et al., PARONEN and KANEKO et al. A

*prima facie* case of unpatentability has thus not been made. Claims depending upon claim 1 are patentable for at least the above reasons.

Also, the present invention displays unexpected results over the applied art references, as has been noted above.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

### **Conclusion**

The Examiner is thanked for considering the Information Disclosure Statements filed December 15, 2004 and March 15, 2005 and for placing initialed PTO-1449 Forms of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The rejections are believed to have been overcome, obviated or rendered moot and no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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